

IV. AMENDMENTS TO THE CLAIMS

1. - 14. (Canceled)

15. (New) A light emitting diode, comprising:  
a pellet body having an n-type GaP single crystal substrate layer, an n-type GaP epitaxial layer disposed on the n-type GaP single crystal substrate layer, an n-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio variable layer disposed on the n-type GaP epitaxial layer, a nitrogen-doped n-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio constant layer disposed on the n-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio variable layer and a p-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio constant layer disposed on the nitrogen-doped n-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio constant layer, the p-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio constant layer having a roughened outer surface.

16. (New) A light emitting diode according to claim 15, wherein the p-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio constant layer is doped with zinc.

17. (New) A light emitting diode according to claim 15, wherein the roughened outer surface has a (100) orientation.

18. (New) A light emitting diode according to claim 15, wherein a p-n junction is formed at a boundary between the nitrogen-doped n-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio constant layer and the p-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio constant layer.

19. (New) A light emitting diode according to claim 18, wherein the roughened outer surface is disposed opposite the boundary.

20. (New) A light emitting diode according to claim 15, further comprising a p-side electrode and an n-side electrode, the p-side electrode being disposed on the

p-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio constant layer, the n-side electrode being disposed on the n-type GaP single crystal substrate layer.

21. (New) A process for fabricating a light emitting diode, comprising the steps of:

providing an n-type GaP single crystal substrate layer;

depositing an n-type GaP epitaxial layer on the n-type GaP single crystal substrate layer;

depositing an n-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio variable layer on the n-type GaP epitaxial layer;

depositing a nitrogen-doped n-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio constant layer disposed on the n-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio variable layer;

diffusing zinc partially into the nitrogen-doped n-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio constant layer at an outer surface thereof to form a p-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio constant layer and a p-n junction at a boundary between the nitrogen-doped n-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio constant layer and the zinc-diffused, nitrogen-doped p-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio constant layer; and

etching the outer surface of the p-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio constant layer with an aqueous solution, the outer surface being disposed opposite the boundary.

22. (New) A process according to claim 21, wherein the p-type  $\text{GaAs}_{1-x}\text{P}_x$  mixed crystal ratio constant layer is doped with zinc.

23. (New) A process according to claim 21, wherein the aqueous solution includes one of  $\text{Br}_2$  and  $\text{I}_2$ .

24. (New) A process according to claim 23, wherein the aqueous solution includes at least one of nitric acid, hydrofluoric acid and acetic acid.

25. (New) A process according to claim 23, wherein the aqueous solution includes nitric acid, hydrofluoric acid and acetic acid.

26. (New) A process according to claim 25, wherein the aqueous solution contains 40 to 80 parts of nitric acid, 40 to 300 parts of hydrofluoric acid and 400 to 2000 parts of acetic acid based on 1 part of Br<sub>2</sub> or I<sub>2</sub> in a molar ratio.